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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/543,110	07/22/2005	Bodo Odendall	PNL21480	4340
7590 05/01/2007 Peter N Lalos Stevens Davis Miller & Mosher Suite 850 1615 L Street NW Washington, DC 20036			EXAMINER TRAN, BINH Q	
			ART UNIT 3748	PAPER NUMBER
			MAIL DATE 05/01/2007	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

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Office Action Summary	Application No. 10/543,110	Applicant(s) ODENDALL, BODO	
	Examiner BINH Q. TRAN	Art Unit 3748	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 3, 4 and 7-9 is/are allowed.
- 6) ☒ Claim(s) 1-2, 5-6 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
- 2) ☐ Certified copies of the priority documents have been received in Application No. ____.
- 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|-----------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date ____ | 6) <input type="checkbox"/> Other: ____ |

DETAILED ACTION

This office action is in response to the amendment filed January 31, 2007.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

Claims 1-2, and 5-6 are rejected under 35 U.S.C. 102 (b) as being anticipated by Yamashita et al. (Yamashita) (Patent Number 6,263,668).

Regarding claim 1, Yamashita discloses a method for actuating an accumulator catalyst (19) for nitrogen dioxide on an internal combustion engine (1) for a vehicle, comprising:

operating the engine in a first operating range as the lean operating range with a lean mixture and in which the nitrogen oxides contained in the exhaust gas flow are stored in a nitrogen oxide storage catalyst, to discharge the nitrogen oxide storage catalyst at a predeterminable switching instant when a predetermined switching condition is satisfied by means of the engine control device switching taking place from the lean operating range to the rich operating range (e.g. See col. 5, lines 55-67; col. 6, lines 1-63), and determining an instant of optimized switching from the lean operating range to the rich operating range for discharge of the nitrogen oxide storage catalyst, a discharge threshold is established as a function of a modeled nitrogen oxide raw emission value in the exhaust gas flow and as a function of the detected current nitrogen oxide tail pipe emission value such that discharge of the nitrogen oxide storage catalyst is triggered if the emission values which are brought into a relation to one another indicate that the discharge threshold has been reached or exceeded (e.g. See col. 6, lines 5-67; col. 7, lines 1-67; col. 8, lines 1-67).

Regarding claim 2, Yamashita further discloses that wherein the discharge of the nitrogen oxide storage catalyst is triggered if the current nitrogen oxide tail pipe emission value detected at the instant of switching reaches or exceeds a predeterminable percentage value relative to the modeled nitrogen oxide raw emission value at the instant of switching (e.g. See col. 6, lines 5-67; col. 7, lines 1-67; col. 8, lines 1-67).

Regarding claim 5, Yamashita further discloses that wherein the nitrogen oxide tail pipe emission value is detected preferably by a sensor device, preferably a nitrogen oxide sensor (41), which is located downstream of the nitrogen oxide storage catalyst viewed in the exhaust gas flow direction (e.g. See col. 7, lines 1-58).

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Regarding claim 6, Yamashita further discloses that wherein the internal combustion engine is located in a car (e.g. See col. 6, lines 5-67; col. 7, lines 1-67; col. 8, lines 1-67).

Allowable Subject Matter

Claims 3-4, and 7-9 are allowed.

Since allowable subject matter has been indicated, applicant is encouraged to submit ***Final Formal Drawings (If Needed)*** in response to this Office action. The early submission of formal drawings will permit the Office to review the drawings for acceptability and to resolve any informalities remaining therein before the application is passed to issue. This will avoid possible delays in the issue process.

Response to Arguments

Applicant's arguments filed January 31, 2007 have been fully considered but they are not completely persuasive. Claims 1-9 are pending.

Applicants have argued that Yamashita does not teach or suggest Applicants's claimed invention. More specifically, Applicants assert that the reference to Yamashita fails to disclose the steps of *operating the engine in a first operating range as the lean operating range in which the nitrogen oxides contained in the exhaust gas flow are stored in a nitrogen oxide storage catalyst, to discharge the nitrogen oxide storage catalyst at a predeterminable switching instant when a predetermined switching condition is satisfied by means of the engine control device switching taking place from the lean operating range to the rich operating range, and detecting nitrogen oxide tail pipe emission value is detected preferably by a nitrogen oxide sensor*. The examiner respectfully disagrees, in column 6, lines 5-67; column 7, lines 1-67; and column 8, lines 1-67,

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Yamashita has clearly disclosed that "This embodiment is characterized in that the rich time is learned one by one while monitoring the NOx purification state by the NOx catalyst 19 in order to optimally shorten the rich time. As shown in FIG. 9, an NOx sensor 41 serving as catalyst state detector is provided on the downstream side of the NOx catalyst 19 and an output of the sensor 41 is fetched by the ECU 30. The ECU 30 learns to gradually shorten the rich time while monitoring the output of the NOx sensor. When the output of the NOx sensor (NOx concentration) becomes a predetermined value or larger during the process for shortening the rich time, the rich time at that time is regarded as the minimum and is stored into the backup RAM 34 in the ECU 30. When the rich time is gradually updated so as to be shortened while monitoring the NOx purifying state by the NOx catalyst 19 and the rich time at that time is discriminated as a limit value from the NOx purified state by the catalyst 19, the updating of the rich time to shorten the rich time is cancelled. By the operation, the rich time can be shortened while assuring the NOx purifying performance of the NOx catalyst 19. In such a case as well, the rich mixture combustion is carried out for the optimum time and the improvement in the fuel consumption and the suppression of torque fluctuation can be realized. The NOx sensor 41 is provided on the downstream side of the NOx catalyst 19 and the degree of the NOx purification by the NOx catalyst 19 is discriminated based on the output of the sensor. Consequently, the shortening of the rich time is permitted or prohibited on the basis of the output (NOx concentration) of the NOx sensor and the rich time can be properly learned. The learned value of rich time is stored every operating zone of the engine 1. Consequently, the rich time according to the engine operating state can be set each time so that a change in the operating state can be properly dealt with. When it is discriminated that the rich time reaches the limit value of the shortening on the

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basis of the output of the NOx sensor, the rich time is updated to the opposite side (time corresponding to one injection is added). In this case, even if the rich time is shortened excessively, the rich time can be corrected. The optimum rich time can be always set even when the rich time has to be prolonged due to a change with time such as deterioration of the NOx catalyst 19". It is clearly that Yamashita has show the steps of operating the engine in a first operating range as the lean operating range in which the nitrogen oxides contained in the exhaust gas flow are stored in a nitrogen oxide storage catalyst, to discharge the nitrogen oxide storage catalyst at a predeterminable switching instant when a predetermined switching condition is satisfied by means of the engine control device switching taking place from the lean operating range to the rich operating range, and detecting nitrogen oxide tail pipe emission value is detected preferably by a nitrogen oxide sensor.

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

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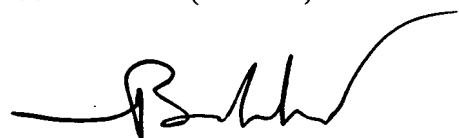
Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Binh Tran whose telephone number is (571) 272-4865. The examiner can normally be reached on Monday-Friday from 8:00 a.m. to 4:00 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas E. Denion, can be reach on (571) 272-4859. The fax phone numbers for the organization where this application or proceeding is assigned are (571) 273-8300 for regular communications and for After Final communications.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

BT
April 28, 2007



Binh Q. Tran
Patent Examiner
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